

Assistive Technology Tools Math



By Lourdes Day, FDLRS Technology Specialist
Local Assistive Technology Team (LAT)
Lourdes.day@polk-fl.net

Florida Diagnostic and Learning Resources System (FDLRS) is funded through IDEA, Part B and State General Revenue Funds to provide support services to Florida's Exceptional Student Education Programs

lourdes.day@polk-fl.net



Math Difficulties –Attention & Memory

About 6% of school age children have a mathematics deficit. This could be related to memory problems which leaves them unable to master the math facts.

**Calculators and math charts are useful tools to accommodate this area.*

Some students understand the concepts but have difficulties with attention. These students will have problems:

*Sequencing steps

Start by giving students a checklist that they can use to move logically through a problem and then wean the prompt by masking one step at a time.

*Paying attention to the signs of operations.

*Highlight or change the color of the **signs** to draw their attention to the symbol.*

Kate Garnett (1998)

■ <http://www.idonline.org/article/5896>



Math Difficulties - Symbolic

Young children may have difficulties matching picture with symbolic representation (eg.. Count the cats in this picture)

There is research evidence that students who use concrete materials actually develop more precise and more comprehensive mental representations, often showing more motivation and on-task behavior, may better understand mathematical ideas, and may better apply these to life situations. (Garnett 1998)

**Use concrete objects that they can hold and manipulate*

Kate Garnett (1998)

<http://www.ldonline.org/article/5896>



Math Difficulties related to Language

Some students are hampered by the language aspects of math, resulting in confusion about terminology, difficulty following verbal explanations, and/or weak verbal skills for monitoring the steps of complex calculations.

*Teachers can help by slowing down the pace of their delivery, chunk of verbal information when; asking questions, giving directions, presenting concepts, and offering explanations.

*Have the students play teacher and explain how they arrived at the answer. Give them concrete materials to help explain their answers.

Kate Garnett (1998)

- <http://www.ldonline.org/article/5896>



Assistive Technology & Math

- Assistive technology may help students who struggle in the area of math, to compute, sort, graph, align and solve word problems
- Allowable FCAT accommodation include:
 - The use of a talking calculator in grade 7
 - Grid paper to align numbers
 - Reading of word problems
 - Abacus and Geoboards

*These MUST be listed on the IEP and used in daily instruction.

<http://www.fldoe.org/ese/pdf/descfcats.pdf>

Math Tools

- Grid paper
- Talking Calculators
- Talking Ruler
- Abacus / Number lines
- Grip ruler
- Coin-U-Lator
- Math Stamps
- Math Software
 - Math Companion, Math Pad, Excel...



Math Grids



- Math grids provide more space for computations and help the student organize and align computational steps.
- Try turning a regular piece of lined paper horizontally so the lines go up and down. This give students place value columns to align their numbers
 - Create your own free graph paper on the web <http://www.graphtablet.com/graphtablet.html>
 - **CD of a variety of Math grids available form www.onionmountaintech.com Cost \$10.00**

Talking Calculator



- A talking calculator reads back entries and answers to aid a student who needs auditory help in calculation.
- Remember the student may need to be in a location so they do not disturb others or wear headphones.
- **Cost \$20.95**



Online Calculators

- Talking calculator free to download
 - <http://www.sensorysoftware.com/bigcalculator.html>
- Basic Calculator with paper display (free)
 - <http://www.moffsoft.com/freecalc.htm>

Audio Ruler

- Crayola Total Tools Audio Ruler measures out loud! This talking tool measures in quarter inch increments up to one foot with a thin line of disappearing ink. This can help students self check their measuring accuracy.
- Cost \$7.99



Adapted Grip Ruler

- An adapted ruler will help a student with poor hand or finger dexterity grasp and manipulate a ruler for those FCAT assessment items where measurement is required.
- **Cost \$1.00**



Tools for Money

- Money Calc or Coin-u-Later (\$25)

- www.pcicatalog.com

- Software

- Making Change or Basic Coins

- www.attainmentcompany.com





Text to Speech Technology

- Use text to speech technology which can read word problems to students who have difficulties with decoding. This will allow students to read word problems independently.

- www.naturalreaders.com (free)

The following products allow you to scan the worksheet and then have it read to the student.

- Read, Write, Gold –TextHelp
- Kurzweil
- Wynn
- Intellitalk



Web Sites of Free Resources

- Free online virtual manipulative
 - <http://nlvm.usu.edu/en/nav/vlibrary.html>
- This page links to many other manipulative site
 - http://www.ct4me.net/math_manipulatives.htm#Manipulatives
- Worksheet Generators
 - <http://themathworksheetsite.com/>
 - <http://www.mathfactcafe.com/build/>
- Flash Card Generator
 - <http://www.studystack.com/category-8>



Online Math Games

■ Elementary

- <http://www.k111.k12.il.us/KING/math.htm#Beginning%20Math%20Activities>
- <http://www.funbrain.com/brain/MathBrain/MathBrain.html>

■ K-8

- <http://www.aaastudy.com/add.htm>
- <http://www.thatquiz.org/>



Homework Help or Reinforcement

- <http://www.webmath.com/>
- <http://www.ixl.com/math/>